detail. The second part glances at the same facts, so far as they are found manifested in the lower animals, more especially in the Arthropods, Mollusca, and Worms. Many of the woodcut illustrations are from original drawings, and of these those representing the muscles engaged in prehension and mastication are very good.

Animal Life on the Farm. By Prof. G. T. Brown, Agricultural Department, Privy Council. (London: Bradbury and Agnew.)

THIS is the last of a series of eight convenient handbooks covering the whole field of agricultural study. Dr. Masters's "Plant Life on the Farm" is ably followed by the excellent little book from the pen of Prof. Brown; and what may at first appear in the light of omissions in a treatise upon animal life as seen upon farms is at once corrected by the previously-published account of the live stock of the farm. Thus, while the subject of crops of the farm and live stock of the farm were ably treated, there was still room for more purely scientific writers, such as Dr. Masters and Prof. Brown, to treat of life more as biologists than as practical farmers. Accordingly, what is true of life on the farm is in many respects true of life in the forest and life in the city; but this does not detract from the value of facts about life wherever it may be found. It was probably an agreeable task to the writer to put this little volume together. It is full of matter with which he is very familiar, and which he is able to present with that admirable clearness and precision which has always characterised both his oral and written teaching. Commencing with the two opposite conditions of life, and death, as abstractions, we are pleasantly led to the consideration of the beginnings of life in the egg, and by a natural progress to a popular, but at the same time accurate, description of tissues, organs, and functions, which carry the reader through about two-thirds of the book. The remaining third is devoted to the peculiarities of domesticated animals, and in fact becomes more thoroughly specialised upon the farm. The variability, the precocity, the delicacy, the plasticity of domesticated animals are each dealt with by a master hand, and illustrated by examples taken from the experience of breeders and our great agricultural societies.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

Iridescent Clouds

IN a letter published in NATURE for January 7 (p. 220), I tried to describe the appearance of the iridescent clouds as seen here on the afternoon of December 28. The phenomenon was repeated on December 29 and 31. On December 30, and again on January 1, the sky was overcast, but since then, though I have looked for them at different times of the day, and especially about sunrise and sunset, I have seen no further trace of iridescent clouds.

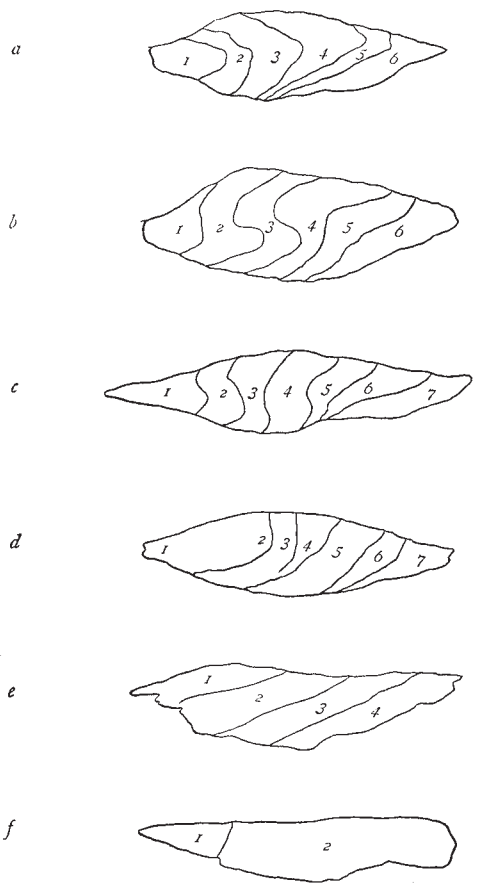
What struck me as most remarkable about them was, not the prevalent colour which they have been said to possess (see pp. 199, 219), for I cannot point out any as being peculiar to them, but the changes of colour undergone, often rapidly, by each individual cloud. As a record of these changes in the few instances I am able to give may perhaps help to throw some light on the nature and origin of these clouds, I trust I may be excused for occupying so much of your space.

December 29.—3.15 p.m., the sun a few degrees from setting, light cloud partly covering the sky, heavy snow-clouds near the horizon. At about 10° north of the sun and at an altitude of about 25°, there was a small cloud, 5° in length, consisting of four or five narrow bands nearly parallel to the horizon, all of a faint, but beautiful, violet colour. Soon after this, it was hidden by snow-clouds.

3.44.—This cloud was again visible, showing iridescent colours, no longer consisting of bands, but oval in form and slightly inclined to the north. Half a minute later, a branch of the same form and size, but rather more inclined to the north, appeared on the right, very faint, but increasing rapidly in brightness, until it equalled that of the original cloud. The new branch was at first violet, but in part tinged with rose-colour. The original cloud soon, however, began to fade, and by 3.47 had disappeared, the remainder being then green, except the upper edge slightly tinged with pink.

3.50.—The colours almost gone, but I believe the cloud was at this time covered by a thin haze. At 3.52 the cloud was very faint, and white.

Fig. I.



3.55.—The colours again appeared, in three bands, blue on the left (nearest the sun), green in the middle, and on the right pink. But, immediately, the colours began to change, the blue and pink to fade, the green band becoming wider and brighter, until, in a few seconds, the whole cloud was green. It grew brighter and brighter until, at 3.57, it shone out a pure beautiful green almost of rainbow-brightness. But, at this moment, the snow-clouds, which had been rising rapidly, passed over it, and heavy driving snow began to fall.

At 4.18 the snow-storm was over, and in nearly the same place as the cloud just described were two small clouds, each about 5° long, at altitudes of about 20° and 25° respectively. They were faint, and had a slight trace of indefinite colouring. By 4.26 they had both disappeared.

4.28.—The two clouds again visible, the lower green, and the upper rose-coloured. But the clouds began to fade at once, and a minute later both had disappeared finally, the sky being now, and continuing, quite clear.

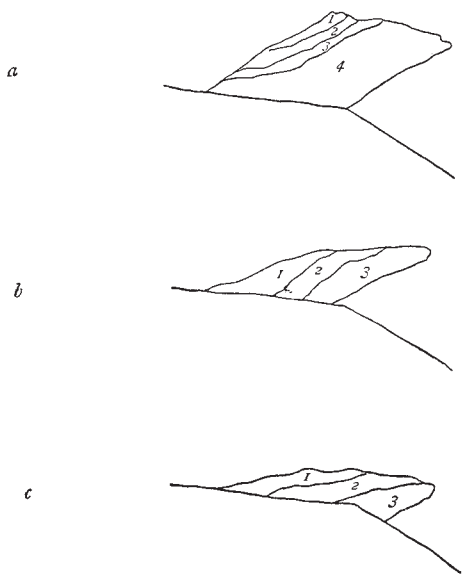
Besides these there were a few other small clouds, white, and of unusual character and brightness, but at no time did I detect in them any certain trace of colouring.

December 31.—At about 10 a.m., and for some time after, I noticed a small coloured cloud, above, but a little to the west of, the sun, and at an altitude of about 30°. The lower edge was blue, immediately above this a narrow band of green, the rest of the cloud being faint, almost colourless, but occasionally showing a slight yellowish tinge, and at the upper edge a touch of red.

At sunset there was the most wonderful display. At 4 p.m. in all parts of the sky were bands of light cirrus cloud, flushed with crimson by the setting sun. In the west, higher than the cirrus, and shining through them and in the intervals between, were splendid iridescent clouds, set off against a background of blue. I have never yet seen anything to equal the glory of this sky. It is impossible to describe it, the colours were so varied and their changes so rapid. I confined my attention, therefore, to the two largest and most beautiful clouds, and the following is a record of the colours and their variations, so far as I was able to observe them.

(1) One of these clouds is shown in Fig. 1. It was situated a few degrees south of west, about 20° above the horizon, and was about 15° in length and 5° in greatest breadth. During the whole time it seemed stationary, though changing slightly in

Fig. 2.



form. It was crossed by beautiful bands of colour, separated by fairly sharp lines. Sometimes, when the stripes of colour were narrow, I have included them in one band, to save time in drawing; the order being then given from left to right.

4.5 p.m.—Fig. 1, *a*. The right end of the cloud hazy. (1) Green, (2) yellow, orange, red; (3) blue, green, yellow, red; (4) red, with a tinge of purple; (5) bright purple; (6) red, green.

4.11.—Fig. 1, *b*. Both ends hazy. (1) Pink in the haze, blue; (2) yellow, green, orange; (3) green; (4) red; (5) blue; (6) red, ending in green in the haze.

4.18.—Fig. 1, *c*. The cloud rather longer and narrower than before. (1) Green; (2) green; (3) yellow, orange; (4) green; (5) red; (6) green; (7) red.

4.21.—The orange band 3 beginning to invade the green band 2.

4.22.—The red band 5 growing brighter.

4.25.—The red and orange bands, 3 and 5, widening, and becoming the predominant colours of the cloud.

4.27.—Fig. 1, *d*. (1) Light haze; (2) hazy; (3) red; (4) green; (5) bright red; (6) greenish; (7) orange red. The general hue of the cloud was at this time reddish orange, the red and orange bands being much brighter than the rest.

4.30.—Fig. 1, *e*. The outline hazy. (1) Haze; (2) red: (3) reddish orange; (4) red.

4.32.—Fig. 1, *f*. (1) Thin haze; (2) not quite so bright as before, but all of a deep rose-colour.

4.34.—The rose-coloured part had a slight tinge of purple, which, two minutes later, had become more marked, but rising clouds now stopped further observation.

(2) The other cloud was in a west-south-west direction, about 10° above the horizon, and partly hidden by a bank, which served, however, to show how slightly the cloud altered its position.

4.7 p.m.—Fig. 2, *a*. (1) Green; (2) orange red; (3) light green; (4) violet. All these colours very bright.

4.13.—The colours had changed, so that the general hue of the cloud was blue.

4.14.—Fig. 2, *b*. (1) Orange; (2) bright blue; (3) violet. The right edge hazy.

4.16.—The left side blue, the right violet, with a narrow pink band on the lower edge.

4.17.—The greater part of the cloud a very bright light blue, violet on the right, pink on the upper edge towards the left.

4.22.—Very faint and bluish.

4.25.—The cloud smaller, and bluish-green, but still faint.

4.26.—Green, and brighter.

4.29.—Fig. 2, *c*. The whole cloud much brighter, though not so bright as when first seen. (1) Reddish; (2) green; (3) reddish.

4.34.—The cloud the same shape as at 4.29, and the whole of it orange-coloured. After this moment it was hidden by heavy clouds.

Beside the two clouds above described, and several other smaller ones similar to them, there was visible in the west, at 4.26, a long narrow band of cloud (about 20° long and 3° or 4° broad), parallel to the horizon, and of a distinctly violet colour throughout.

CHARLES DAVISON

Sunderland, January 12

Parallel Roads in Norway

IN Mr. Hansen's account of the terrace formation of Central Norway he discards the sea theory of their origin, as well as the detrital dam, the local glacier theory, and also that of Prof. Prestwich, of landslips. The cause he ascribes to rests in the passage of the inland ice seawards, allowing lakes to form in the watershed while ice remained in the valleys seaward. Does this idea not reverse the order of Nature? Would it not be far simpler, more reasonable, and more in accordance with the laws of Nature to conclude that ice would remain in the highest valleys of the country longest, and that the parallel roads or terraces are the ice margins or lateral moraines where the ice rested after the most intense glaciation ceased, while the surplus passed over the cols, and the passage seaward was more or less retarded by the configuration of the country? The Lochaber roads are mostly composed of the usual glacial stuff of the district, it is neither washed as lake margins or sea beaches. The only water-washed material seems to have run down from the hills above, before glaciation ceased, and vegetation covered the surface. The roads are neither strictly parallel or horizontal, and just what might be expected to be formed by ice lying for a long time in a valley when the growth did not greatly exceed the waste and the motion was slow.

JAMES MELVIN

Edinburgh

Dew

HAVING read with interest the abstract in NATURE of January 14 (p. 256) of Mr. Aitken's observations on dew, I noted attentively during a walk this morning the behaviour of the hoar-frost as deposited on different objects. The morning was fine and frosty after a clear cold night. There was a copious deposit of hoar-frost upon the grass, upon the upper side of wooden rails, and upon the topmost twigs of the bushes in the tall hedges (6 to 8 feet high), but the lower twigs in the hedges had little or none. On stones in the road, as Mr. Aitken observes, there was little hoar-frost on the upper surface, only lines of ice crystals along the salient angles, but their under surfaces were thickly covered. With the loose heaps of broken stones by the road-sides the case was different: here the uppermost stones were thickly coated with frost on their upper surface, but had little on their lower surface; the stones underneath the uppermost layer, on the contrary, were coated with hoar-frost on their under, but not on their upper, surfaces. The hollow "cat's ice" on the road-side puddles, where previously